

June 10, 2016

Meagan E. Ormand
Golder Associates Inc.
2108 W. Laburnum Ave.
Suite 200
Richmond, VA 23227

RE: Project: Bremo Weekly Process
Pace Project No.: 92300811

Dear Meagan Ormand:

Enclosed are the analytical results for sample(s) received by the laboratory on June 09, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc.
Martha Smith, Golder Associates Inc.
Mike Williams, Golder Associates Inc



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Bremo Weekly Process

Pace Project No.: 92300811

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074

Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Bremo Weekly Process

Pace Project No.: 92300811

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92300811001	T3-160609-0930-S3	EPA 1664B	JMS	1	PASI-C
		EPA 200.7	AIS	1	PASI-O
		Trivalent Chromium Calculation	HEA	1	PASI-O
		EPA 200.8	CKJ	10	PASI-O
		EPA 245.1	ANB	1	PASI-A
		SM 2540D	MJP	1	PASI-A
		EPA 218.7	AEM	1	PASI-O
		EPA 350.1	AES2	1	PASI-A
		SM 4500-CI-E	AES2	1	PASI-A

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: EPA 1664B

Description: HEM, Oil and Grease

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for EPA 1664B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92300811

Method: EPA 200.7
Description: 200.7 MET ICP
Client: Golder_Dominion_Bremo
Date: June 10, 2016

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: Trivalent Chromium Calculation

Description: Trivalent Chromium Calculation

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92300811

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: Golder_Dominion_Bremo
Date: June 10, 2016

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MPRP/30965

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1602015)
 - Silver
 - Arsenic
 - Cadmium
 - Lead
 - Antimony
 - Selenium
 - Thallium
- MSD (Lab ID: 1602016)
 - Silver
 - Arsenic

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: Golder_Dominion_Bremo

Date: June 10, 2016

Analyte Comments:

QC Batch: MPRP/30965

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MSD (Lab ID: 1602016)
 - Lead
 - Antimony
 - Selenium
 - Thallium

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: EPA 245.1

Description: 245.1 Mercury

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: SM 2540D

Description: 2540D TSS, Low-Level

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: EPA 218.7

Description: Hexavalent Chromium by IC

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for EPA 218.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: EPA 350.1

Description: 350.1 Ammonia

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for EPA 350.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92300811

Method: SM 4500-CI-E

Description: 4500 Chloride

Client: Golder_Dominion_Bremo

Date: June 10, 2016

General Information:

1 sample was analyzed for SM 4500-CI-E. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Bremo Weekly Process
Pace Project No.: 92300811

Sample: T3-160609-0930-S3		Lab ID: 92300811001		Collected: 06/09/16 09:30		Received: 06/09/16 15:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Field Data	Analytical Method:								
Collected By	M. Ormand			1		06/09/16 09:40			
Collected Date	6/9/16			1		06/09/16 09:40			
Collected Time	9:30			1		06/09/16 09:40			
Field pH	8.1	Std. Units	0.10	1		06/09/16 09:40			
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	5.0	1		06/10/16 08:29			
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Tot Hardness asCaCO3 (SM 2340B	74200	ug/L	3300	1	06/10/16 11:20	06/10/16 15:18			
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	ug/L	5.0	1		06/10/16 17:14	16065-83-1		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	5.2	ug/L	5.0	1	06/10/16 11:20	06/10/16 15:17	7440-36-0		
Arsenic	66.9	ug/L	5.0	1	06/10/16 11:20	06/10/16 15:17	7440-38-2		
Cadmium	ND	ug/L	1.0	1	06/10/16 11:20	06/10/16 15:17	7440-43-9		
Copper	ND	ug/L	5.0	1	06/10/16 11:20	06/10/16 15:17	7440-50-8		
Lead	ND	ug/L	5.0	1	06/10/16 11:20	06/10/16 15:17	7439-92-1		
Nickel	ND	ug/L	5.0	1	06/10/16 11:20	06/10/16 15:17	7440-02-0		
Selenium	ND	ug/L	5.0	1	06/10/16 11:20	06/10/16 15:17	7782-49-2		
Silver	ND	ug/L	0.40	1	06/10/16 11:20	06/10/16 15:17	7440-22-4		
Thallium	ND	ug/L	1.0	1	06/10/16 11:20	06/10/16 15:17	7440-28-0		
Zinc	ND	ug/L	25.0	1	06/10/16 11:20	06/10/16 15:17	7440-66-6		
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury	ND	ug/L	0.10	1	06/10/16 10:45	06/10/16 14:01	7439-97-6		
2540D TSS, Low-Level	Analytical Method: SM 2540D								
Total Suspended Solids	4.5	mg/L	1.0	1		06/10/16 12:04			
Hexavalent Chromium by IC	Analytical Method: EPA 218.7								
Chromium, Hexavalent	ND	ug/L	3.0	3		06/10/16 12:19	18540-29-9		
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.20	1		06/10/16 12:19	7664-41-7		
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	18.5	mg/L	5.0	1		06/10/16 14:49	16887-00-6		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch: GCSV/25221

Analysis Method: EPA 1664B

QC Batch Method: EPA 1664B

Analysis Description: 1664 HEM, Oil and Grease

Associated Lab Samples: 92300811001

METHOD BLANK: 1752850

Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	06/10/16 08:28	

LABORATORY CONTROL SAMPLE: 1752851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	35.2	88	78-114	

MATRIX SPIKE SAMPLE: 1752852

Parameter	Units	92300529001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	40	35.8	90	78-114	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch: MERP/9578

Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1

Analysis Description: 245.1 Mercury

Associated Lab Samples: 92300811001

METHOD BLANK: 1753069

Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.10	06/10/16 13:56	

LABORATORY CONTROL SAMPLE: 1753070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.5	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1753071 1753072

Parameter	Units	92300811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.4	2.4	95	97	70-130	2	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch: MPRP/30964

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 MET

Associated Lab Samples: 92300811001

METHOD BLANK: 1602001

Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3300	06/10/16 15:07	

LABORATORY CONTROL SAMPLE: 1602002

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	165000	152000	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1602003 1602004

Parameter	Units	92300811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Tot Hardness asCaCO3 (SM 2340B	ug/L	74200	165000	165000	232000	227000	95	92	70-130	2	

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QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92300811

QC Batch:	MPRP/30965	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples:	92300811001		

METHOD BLANK: 1602013 Matrix: Water
Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	06/10/16 15:03	
Arsenic	ug/L	ND	5.0	06/10/16 15:03	
Cadmium	ug/L	ND	1.0	06/10/16 15:03	
Copper	ug/L	ND	5.0	06/10/16 15:03	
Lead	ug/L	ND	5.0	06/10/16 15:03	
Nickel	ug/L	ND	5.0	06/10/16 15:03	
Selenium	ug/L	ND	5.0	06/10/16 15:03	
Silver	ug/L	ND	0.40	06/10/16 15:03	
Thallium	ug/L	ND	1.0	06/10/16 15:03	
Zinc	ug/L	ND	25.0	06/10/16 15:03	

LABORATORY CONTROL SAMPLE: 1602014

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	150	144	96	85-115	
Arsenic	ug/L	100	100	100	85-115	
Cadmium	ug/L	10	9.8	98	85-115	
Copper	ug/L	50	49.3	99	85-115	
Lead	ug/L	100	101	101	85-115	
Nickel	ug/L	50	48.6	97	85-115	
Selenium	ug/L	150	152	101	85-115	
Silver	ug/L	50	49.1	98	85-115	
Thallium	ug/L	150	154	103	85-115	
Zinc	ug/L	200	204	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1602015 1602016

Parameter	92300811001		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
	Units	Result									
Antimony	ug/L	5.2	750	750	809	797	107	106	70-130	1	E
Arsenic	ug/L	66.9	500	500	548	550	96	97	70-130	0	E
Cadmium	ug/L	ND	50	50	50.4	50.0	101	100	70-130	1	E
Copper	ug/L	ND	250	250	241	241	96	96	70-130	0	
Lead	ug/L	ND	500	500	512	509	102	102	70-130	1	E
Nickel	ug/L	ND	250	250	243	242	96	96	70-130	0	
Selenium	ug/L	ND	750	750	695	699	92	93	70-130	1	E
Silver	ug/L	ND	250	250	261	257	104	103	70-130	1	E
Thallium	ug/L	ND	750	750	744	737	99	98	70-130	1	E

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:											
			1602015			1602016					
Parameter	Units	92300811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Zinc	ug/L	ND	1000	1000	946	947	94	94	70-130	0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch: WET/45448

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 92300811001

METHOD BLANK: 1753091

Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	06/10/16 12:04	

LABORATORY CONTROL SAMPLE: 1753092

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	244	98	90-110	

SAMPLE DUPLICATE: 1753093

Parameter	Units	92300811001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	4.5	4.7	4	

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch: WETA/58597

Analysis Method: EPA 218.7

QC Batch Method: EPA 218.7

Analysis Description: Chromium, Hexavalent IC

Associated Lab Samples: 92300811001

METHOD BLANK: 1602389

Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	1.0	06/10/16 11:53	

LABORATORY CONTROL SAMPLE: 1602390

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	.075	.076J	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1602391 1602392

Parameter	Units	92300811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	ND	.22	.22	.69J	.68J	95	87	85-115	3	

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch: WETA/27912

Analysis Method: EPA 350.1

QC Batch Method: EPA 350.1

Analysis Description: 350.1 Ammonia

Associated Lab Samples: 92300811001

METHOD BLANK: 1753197

Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.20	06/10/16 12:16	

LABORATORY CONTROL SAMPLE: 1753198

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1753199 1753200

Parameter	Units	92300811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.1	5.2	103	103	90-110	0	

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QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92300811

QC Batch:	WETA/27914	Analysis Method:	SM 4500-Cl-E
QC Batch Method:	SM 4500-Cl-E	Analysis Description:	4500 Chloride
Associated Lab Samples:	92300811001		

METHOD BLANK: 1753396 Matrix: Water

Associated Lab Samples: 92300811001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	5.0	06/10/16 14:47	

LABORATORY CONTROL SAMPLE: 1753397

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1753398 1753399

Parameter	Units	92300811001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
			Spike Conc.	Spike Conc.							
Chloride	mg/L	18.5	10	10	28.0	28.0	95	95	90-110	0	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Bremo Weekly Process

Pace Project No.: 92300811

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-C Pace Analytical Services - Charlotte

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: Bremo Weekly Process

Pace Project No.: 92300811

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92300811001	T3-160609-0930-S3		FLD/		
92300811001	T3-160609-0930-S3	EPA 1664B	GCSV/25221		
92300811001	T3-160609-0930-S3	EPA 200.7	MPRP/30964	EPA 200.7	ICP/18487
92300811001	T3-160609-0930-S3	Trivalent Chromium Calculation	ICP/18494		
92300811001	T3-160609-0930-S3	EPA 200.8	MPRP/30965	EPA 200.8	ICPM/12531
92300811001	T3-160609-0930-S3	EPA 245.1	MERP/9578	EPA 245.1	MERC/9206
92300811001	T3-160609-0930-S3	SM 2540D	WET/45448		
92300811001	T3-160609-0930-S3	EPA 218.7	WETA/58597		
92300811001	T3-160609-0930-S3	EPA 350.1	WETA/27912		
92300811001	T3-160609-0930-S3	SM 4500-CI-E	WETA/27914		

REPORT OF LABORATORY ANALYSIS

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	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: May 24, 2016 Page 1 of 2
	Document No.: F-MEC-CS-009-Rev.03	Issuing Authority: Pace Mechanicsville Quality Office

Page 2 of 2 for Internal Use ONLY

Sample Condition Upon Receipt

Client Name:

Golder/Bremo

Project #

WO#: 92300811

Courier: ☐ Commercial ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☒ Pace ☐ Other:

Custody Seal Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other:

Thermometer: ☒ RMD001 ☐ Type of Ice: ☒ Wet ☐ Blue ☐ None

Date/Initials Person Examining Contents: 6-9-16 RSB

Correction Factor: 0.0°C Cooler Temp Corrected (°C): 2.9

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

			Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Rush Turn Around Time Requested?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Samples Field Filtered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.	Note if sediment is visible in the dissolved container
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Includes Date/Time/ID/Analysis Matrix: <u>WW</u>			
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	HNO3 pH<2 HCl pH<2 H2SO4 pH<2 NaOH pH>12 NaOH/ZnOAc pH>9
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Samples checked for dechlorination?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____
Comments/Sample Discrepancy: _____

Project Manager SCURF Review: NMG

Date: 6/10/16


Project Manager SRF Review: NMG

Date: 6/10/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:					
SIGNATURE of SAMPLER:					
M. Dwyer 					
DATE signed (MM/DD/YY):					
6/9/16					